Anan Notes

Constructivism

In the 20 th century Piaget’s theory showed that children need to construct or reconstruct knowledge in order to learn and that they also need rich opportunities to interact with the physical world and with their peers. Piaget’s work on cognitive development provided the foundation for modern-day constructivists (Wadworth, 1979).

Constructivist theory has implications for the ways in which educators view learners. It acknowledges that learners come from various cultural backgrounds, and possess a range of interests and styles of learning. These are respected and form the basis of curriculum planning and practice. Rather than lecture and specific step-by- step presentation, curricula should have based on projects, authentic tasks, real-world contexts

The concept of constructivism emphasizes the student as being the “active learner”, playing a central role in mediating and controlling learning and most of the learning environments are technology-based in which learners are engaged in meaningful interactions. Constructivist learning environments also supports project- based curriculum as an alternative to traditional teaching practices (Jonassen, 1999).

Project-Based Learning

Project-based learning (PBL) is an effective educational approach. It focuses on creative thinking, problem- solving, and the interaction of students with their peers to create and use new knowledge. Notably, this is done in a context of active, scientific dialogue with supervisors who are active researchers (Berenfeld, 1996, Marchaim 2001). In project based learning environment the teacher acts as facilitator, designing activities and providing resources and advice to students. The students collect and analyze information, make discoveries, and report their results.

Project-based learning provides an authentic environment in which teachers can help students increase their skills through cooperative learning and collaborative problem solving.

In a case study that focused on three pairs of students working together on an integrated math and science project, Venville, Wallace, Rennie, and Malone (2000) found that students’ learning was enhanced as a result of the collaboration and communication between the students of the pairs

PBL is also a model for computer classroom activities that shifts away from short, isolated, teacher-centered lessons. Instead, it emphasizes learning activities that are long-term, interdisciplinary, student-centered, and integrated with real world issues and practices. PBL, in which students work in teams to explore a question or create a projects, helps maximize the student ability to develop computer skills.

Learning Communities

According to Riel and Fulton (2001) it is necessary to create learning communities when given the task of teaching students new technologies. Riel and Fulton defined learning communities as groups of students, teachers, and outside sources that share knowledge, practices and value of the knowledge.

Student Choice

Harrison’s research (1999) looked at assumptions made by teachers about what students know and what they want to know. Harrison found that once students were given minimal instructions, they were soon exploring with other students and entering into conversations with each other about how to complete a task on the computer. Harrison also looked at the ways in which teachers create opportunities for students to learn. Students in the study appeared to be pleased to have had the opportunity to explore new things with peers.

Dooling (2000) found that roughly 30% of students in 4th through 7th grades preferred to learn about technology by trial and error on their own. Dooling’s study also found that family members and friends were a major source of information about new technologies for middle school students. The majority of the students surveyed felt they learned best by doing, not by listening.

Dooling also found that situations where the students knew more about technology than their teachers were not uncommon. In conclusion, Dooling suggested schools should integrate curriculum to use technology as a tool for teaching and learning, and that students appreciate learning experiences that are authentic and relevant.

Although information was abundantly available on teaching methodologies and learning styles, information concerning specific methodologies and learning styles, directly related to teaching computer skills was not found.

Particpants

98 students participated in this study. 86% of the students were between 12 and 14 years.

Context

Now the majority of remain population in Koprubasi has a very low income. Approximately 70% of the students in Koprubasi Primary Education School are being transported from near villages to school by rural school bussing system.

Method

Performance test was given to both control and experimental groups at the beginning of the semester and the same test also was administered at the end of the semester.

Group Sizes

self- selection, where students chose their own group members. The choice of group size involves difficult trade- offs. According to Rau and Heyl (1990), smaller groups (of three) contain less diversity; and may lack divergent thinking styles and varied expertise that help to animate collective decision making. Conversely, in larger groups it is difficult to ensure that all members participate. This study used a group size of four.

Project ideas

The key ingredient for any project idea was that it is student driven, challenging, and meaningful. Several questions formed in this stage such as:

\_ does the project stem from a problem or question that is meaningful to the student? \_ is the project similar to one undertaken by an adult in the community or workplace? \_ does the project give the student the opportunity to produce something that has value or meaning to the student beyond the school setting?

Teacher Role

In the project development process the role of the teacher in this class was that of a facilitator and consultant to these students (Katz, L.G. & Chard, S.C. 2000).

Project implementation

Project implementation was the result of the efforts of many. Most of the students indicated that they respected each others opinion in the group and they learned to share tasks and take responsibility for accomplishing them.

Group Work

Approximately 50 percent of students indicated that there was a disagreement within the group members. Also some responses emerged to confirm the presence of a strong individualistic culture in the groups.

Students also believed that their fellow students contributed to the best of their ability to satisfactorily complete the team project. From all of these responses we can conclude that the students felt very positive about their collaboration.

At the end of the project, they seemed to appreciate that the final outcome was a combined effort and they enjoyed working with the other team members, learned about the importance of teamwork and learned to be more patient with others and to be more open-minded.

Student views on Computer Skill Learning

Despite their lack of experiences they gained enormous achievements. 79% of students indicated that working on the project helped them improve their technological skills and learn about computers. Students acquired basic knowledge of computers, specific software and the skills to use them effectively as well as for learning purposes. They learned how to use scanner, how to insert pictures, sound and video to create PowerPoint presentation.

I order to that they learned how to summarize, take notes, use manual or electronic searches, and ask questions in interviews. Several students indicated that working on the project helped them improve their research skills and learn about new topics. The project also gave them the opportunity to meet new people. The students felt that they learned the importance of time management and taking risks. In addition, they enjoyed learning useful skills.

Through the exploration of a theme and essential question that results in a product, students developed a more in-depth, applied understanding of an academic content area, philosophical issue, or social problem.

Most of the students felt the teacher’s role in supplying knowledge about new technologies is vital to their acquiring new technology skills.

As they engaged in real life issues and practices they tended to assume increased responsibility for their learning.

%90 of the responses confirmed that taking pride in accomplishing something that has a value. It is possible that working on projects helped increase the students' feelings of academic competence because they constructed a meaningful project and helped increase their feelings of peer popularity because they successfully collaborated with others in the group to produce a quality project.

Students thought project based learning is an interesting and enjoyable learning method, and that it offers a more flexible and nurturing way to learn. Their attitudes helped students increasingly become more self-motivated and independent learners, which will help students, continue their learning practices once they leave school.

Project-Based Learning

PBL allows the computer teacher the flexibility to present their curriculum in an innovative manner. In the PBL, the teacher becomes a facilitator, a consultant or guide on the side, helping students to access, organize and obtain information.

Findings

Pre and posttest results, student responses and observations conducted during this study suggest that when students work together in teams to create projects, they maximize their computer skills. This study also indicated that PBL improves students’ collaboration skills. Harrison (1999) and Dooling (2000) studies support this conclusion as well. The data in this study also supports Venville, Wallace, Rennie, and Malone (2000) observation that students’ learning was enhanced as a result of the collaboration and communication between the students of the pair. Additionally, this study supports the findings of Riel and Fulton (2001) on the importance of learning communities. Students need to be given opportunities to work together and develop collaborative skills.

Rationale for project

Today's children need to learn the skills that will help them in today's job market and today's society. They need to learn how to make decisions on their own, work well with others, and sift through vast amounts of information.

Comparison to other instructional strategies

The traditional lecture-oriented classrooms do not teach students the social skills they need to interact effectively in a team Teachers should give students the skills they need to succeed in groups. Many students might have never worked in collaborative learning groups and may need practice in such skills as active and tolerant listening, helping one another in mastering content, giving and receiving constructive criticism, and managing disagreements. Teachers should discuss these skills with his/her students and model and reinforce them during class.